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ABSTRACT

The materials contained in this document are intended for use in a training session for adult educators. The document is designed with the following objectives in mind: inspire adult educators to increase their knowledge of critical thinking in distance education, stimulate participants to foster critical thinking in adult learners, and provide opportunities that foster critical thinking. Discussed in the introductory section are ways of incorporating critical thinking strategies into self-directed learning materials. The concept of critical thinking is defined, and the critical thinker is profiled. Presented next is a critical thinking taxonomy that lists critical thinking dispositions and abilities. Twelve principles of critical thinking for adult learners are enumerated. Examined next are selected passages from published research on critical thinking in the teaching-learning transaction. The following critical thinking teaching strategies in distance learning are described: critical analysis; debate teams; dramatization; action maze; critical incident; scenario building; Socratic questioning; creative visualization; journal writing; quotations or cartoons; inventing; and pluses, minuses, and alternatives. Contains 31 references. (MN)

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DEVELOPING CRITICAL THINKING SKILLS IN ADULT LEARNERS THROUGH INNOVATIVE DISTANCE LEARNING

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DEVELOPING CRITICAL THINKING SKILLS IN ADULT LEARNERS THROUGH INNOVATIVE DISTANCE LEARNING

ABSTRACT

Would a critique of educational materials written by adult educators for distance learning reflect a philosophy of teaching self-directed learners "what to think" or "how to think"? A growing trend in today's society is for people to want educational information in a format that they can access at their leisure. No longer is group meetings the norm for sharing educational materials. Adult educators need to reflect upon distance learning methods to determine if teaching strategies provide adult learners with information and process skills necessary to think critically. Critical thinking is reflective and reasonable thinking that is focused on deciding what to believe or do. Adult learners who think critically are better prepared to contribute positively to individual communities and society as a whole.

This session will focus on critical thinking techniques to use when developing innovative instructional materials to accompany learning via video, audio, and satellite technologies. Emphasis will be on raising questions, encouraging reflection and promoting internal dialogue among adult learners. Specific methods will include journal writing, scenario building, creative visualization and socratic questioning. Objectives for the session include:

1. Inspiring educators to increase their knowledge of critical thinking in distance education;
2. Stimulating participants to foster critical thinking in adult learners; and
3. Providing opportunities to practice techniques that foster critical thinking.

Our personal goal is to create a learning environment that will capture a "critical thinking spirit" where facilitators and participants dialogue about the importance of critical thinking in adult education and the challenges of fostering critical thinking as self-directed learners participate in distance education.

INTRODUCTION

INCORPORATING CRITICAL THINKING STRATEGIES IN SELF-DIRECTED LEARNING MATERIALS

Adult education in an information society should promote self directed learning by fostering an independence in thinking, judging, and acting. Self directed learning means more self-organized learning done individually or in groups with the educator acting as a broker of resources (Dohmen, 1984). Knowles (cited in Welds, 1986) discussed the role of the educator in relationship to engaging in mutual inquiry and not just transmitting knowledge and evaluating learner conformity to the knowledge.

Inkster (1988) stated we must as adult educators embrace critical thinking as our goal. We need to engage in a truly dialectical learning process playing the doubting game and the believing game. Part of the renewed interest in critical thinking today, is the application of critical thinking to the realities of life. The information era has created new information, contradictory to prior facts, and a complicated social environment (Fellenz and Conti, 1989).

Self directed learning requires the use of critical thinking skills and at the same time should develop and nurture those skills. In effect a self directed learner is a critical thinker and a critical thinker is a self directed learner (Wright, 1990). Paul (cited in Wright, 1990) stated "People become educated...(when)...they learn to think for themselves; to gather, analyze, synthesize, and assess what is presented to them for belief. Education is not a mere piling up of more and more bits and pieces of information. It is a process of deciding for ourselves what to believe and do. It implies a self-motivated action upon our own thinking and a participation in the forming of our own character. It is a process in which we learn to open our mind..."

As adult educators we need to carefully analyze our teaching situations to determine if we are using teaching methods that require learners to think critically. Critical thinking is reflective and reasonable thinking focused on deciding what to believe or do. Critical thinking is the mind talking to itself--dialoguing, answering its own questions. Terms used interchangeably with or in relationship to critical thinking include: practical reasoning, reflective thought, higher order thinking, dialectical thinking, divergent thinking, and creative thinking. As adult educators, we need to teach people how to think, not what to think.

The following sections include information on principles of critical thinking, research on critical thinking in the teaching/learning transaction, and instructional strategies for fostering critical thinking in adult learners. We challenge you to adapt this information as you develop self-directed learning experiences.

THE CONCEPT OF CRITICAL THINKING

Critical Thinking is:

- Engaging in an internal dialogue, asking questions such as:
  - Do I agree with what is being said?
  - Based on what I know, is the statement true?
  - How do I personally feel about what is being said?
  - What implications does this decision have for me? For my family? For my community?
- The ability to see that problems have multiple solutions.
- An alternative to making decisions by blind acceptance, impulse or whim, tradition or habit.
- The ability to be reflective of actions in everyday life.

- A process not an outcome.
- Exploring and imagining alternatives.
- Necessary if we are to make sense of what we hear and read.
- Insight into information and claims that bombard us.
- A process to develop and evaluate our own positions on issues.
- An essential element of problem solving, decision making and creativity.
- Careful examination of our thinking and the thinking of others.

Food For Thought:

"Learners cannot be mere sponges absorbing the "wisdom" of a teacher's lecture. Rather they must realistically engage subject matter and actively practice the art of critical thinking" (Meyer).

Profile of a Critical Thinker:

- Appreciates creativity;
- Is innovative;
- Believes life is full of possibilities;
- Sees the future as flexible, not fixed;
- Asks questions and challenges answers;
- Relies less on the authority of the educator and more on joint inquiry with a facilitator;
- Associates facts with real life situations;
- Uses problem solving skills to cope with a changing world;
- Takes risks and is not threatened by failure;
- Accepts others' viewpoints;
- Is open-minded;
- Generates and evaluates alternative choices;
- Encourages and challenges others to be critical thinkers;
- Is objective.

CRITICAL THINKING TAXONOMY

A. Critical Thinking Definition.

1. Critical thinking is reasonable reflective thinking focused on deciding what to believe or do.

B. Critical Thinking Dispositions.
(Refers to critical thinking qualities, characteristics, actions and behaviors.)

1. Seek a clear statement of the thesis or question.
2. Search for reason.
3. Be well informed.
4. Use and mention credible sources.
5. Take into account the total situation.
6. Try to remain relevant to the main point.
7. Keep in mind the original and/or basic problem.
8. Look for alternatives.
9. Be open-minded.
10. Take a position (and change a position) when the evidence and reasons are sufficient to do so.
11. Seek as much precision as the subject permits.
12. Deal in an orderly manner with the parts of a complex whole.
13. Use critical thinking abilities.
14. Be sensitive to the feelings, level of knowledge, and degree of sophistication of others.

C. Critical Thinking Abilities.

1. Focusing on a question.
2. Analyzing arguments.
3. Asking and answering questions of clarification and/or challenge.
4. Judging the credibility of a source.
5. Observing and judging criteria.
6. Deducing and judging deduction.
7. Inducing and judging inductions.
8. Making value judgments.
9. Defining terms, and judging definitions in the dimensions of form, strategy and content.
10. Identifying assumptions.
11. Deciding on an action.
12. Interacting with others.

Source: Robert Ennis' Critical Thinking Taxonomy.

PRINCIPLES OF CRITICAL THINKING FOR ADULT LEARNERS

1. To foster critical thinking, a learning environment must provide the opportunity for adults to consider the strengths and weaknesses of opposing points of view.

2. Opportunities to reflect on, discuss and evaluate one's beliefs and actions facilitates critical thinking.

3. Evaluating a wide range of alternatives when making decisions fosters critical thinking.

4. To foster critical thinking, the learning environment must encourage adults to raise ethical questions about consequences of actions and decisions of themselves and others.

5. To promote critical thinking, the atmosphere of the learning environment should be one of collaborative inquiry by the adult learner and the adult educator.

6. To facilitate critical thinking, the learning environment must reflect probing questions by the adult educator and the adult learner.

7. Critical thinking is facilitated when adult learners engage in exploratory dialogue with themselves or others, proposing ideas and translating subject matter insights and evidence into reflective thought.

8. Critical thinking is enhanced when adult learners are given the opportunity to identify, examine and question assumptions.

9. Opportunities to reach and then discuss inferences or conclusions based on observation and information promotes critical thinking.

10. Discussing contradictions in thoughts, words and actions facilitates critical thinking.

11. Critical thinking is fostered when learners identify implications of actions.

12. A learning environment in which generalizations are challenged facilitates critical thinking. (Jones, 1989)

RESEARCH ON CRITICAL THINKING IN THE TEACHING/LEARNING TRANSACTION

". . . critical thinking requires conditions that empower learners, give them ownership over their thoughts and enable them to be recognized ultimately as autonomous individuals" (Romanish, 1986; citing Kamii, 1984).

Romanish believes that:

> In order for the efforts of critical thinking to work, the entire educational framework must be devoted to the opening of minds, or better yet, the prevention of their closing . . . Once a person gives evidence of adequate knowledge, then he or she can begin to think critically. Whitehead termed this "the mind a pencil" belief, which holds that the mind must be sufficiently sharpened before it can be used. (p. 49)

Barell, Liebman and Sigel (1988) provide more specific characteristics needed to create a learning climate conducive to fostering critical thinking:

> To foster improved thinking, we must create an environment conducive to developing a sense of autonomy within a social context of sensitivity to others. Without a concern for others, we become unable to engage in critical inquiry, which requires that we listen and respond to others' points of view. Students need to feel free to take risks, to experiment with alternative behaviors, to make mistakes without being chastised, and to learn from failure (p. 15)

Beyer (1987) adds to the literature on critical thinking from the perspective of characteristics of the learner in an environment that fosters critical thinking. He relates that in learning environments:

> . . . that support and reinforce thinking, students feel free to, and regularly do, take the initiative to risk, challenge, question, guess, invent, and test ... By providing continuing opportunity and encouragement for students to engage in thinking, teachers create more receptivity to, and motivation for, learning specific thinking skills and strategies. And such classroom environments also nurture student attitudes and behaviors supportive of thinking . . . Student go beyond simply reciting subject matter. They dissect, reflect on, and add to what they read, hear, see or feel to give it new meaning. (p. 67)

Many authors, writing in the arena of critical thinking, emphasize the vital role of the facilitator in assuring that a critical thinking climate is established.

> We do not require a new breed of . . . teachers of an illusory discipline called thinking skills. We need good teachers who can make children think in the particular discipline the teacher is teaching . . . We need committed . . . teachers who make learning interesting . . . We require teachers who will show students

> both where they are right and where they are using inappropriate . . . thinking. (Chambers, 1988, p. 6)

Costa, (1981) reported several research studies that provided suggestions to educators for creating a critical thinking environment:

> Numerous responsive behaviors seem to facilitate intellectual functioning; silence after a question or after a student responds (Rowe, 1974); accepting, building upon, integrating, and extending students' ideas (Flanders, 1069); clarifying (Klevin, 1958); and providing additional information (Andre, 1979) (Suchman, 1966). Such behaviors seem to create a stress-free, cooperative classroom condition where experimental ideas can be risked, alternative hypotheses explored . . .; where value is place on creative problem-solving strategies rather than on conformity to "right" answers. (p. 30)

Two key elements in the critical thinking process are dialogue and questioning. Dialogue can take place within a person's mind or it can be between two ore more people. Goldman (1984) in discussing dialogue said:

> "Thinking is the mind talking to itself, dialoguing, answering its own questions. The dialogue, the Socratic method, is really the externalization of thinking; more accurately, thinking is the internalization of a social process, a dialogue, an interaction between two people. (p. 61)

Paul's (1984) support of the importance of dialogue and questioning was evident when he said educators need to direct their efforts:

> . . . to focus on the Socratic spirit, the educational power of rational dialogue focused on questions of significance in an atmosphere of mutual support and cooperation. (p. 63)

Taba (cited by Welen and Clegg, 1986, p. 153) refers to questioning as "the most influential single teaching act because of the power of the question to impact student thinking and learning."

> Over 2000 years ago, Socrates demonstrated the power of questioning to stimulate thinking. Educators today know that they way a teacher structures a question influences the nature of the thinking required to respond . . . most classroom questions require only factual responses . . . students are not involved in thought-provoking discussions (McTighe and Lyman, 1988, p. 19).

The questioning technique is only effective if the questions asked are effective--probing for more than a memory-type response. In reference to preparing higher cognitive questions, Dillon (1984, p. 55) suggested "to conceive an educative question requires thought; to formulate it requires labor; and to pose it, tact."

Despite the demonstrated effectiveness of higher cognitive questions, most teachers, according to the literature reviewed, do not emphasize them in practice. Gall (1984) synthesized research in this area:

> About 60 percent of teachers' questions require students to recall facts; about 20 percent require students to think; and the remaining 20 percent are procedural (Gall, 1970). This conclusion continues to be supported by recent observational studies of classroom teaching (Hare and Pulliam, 1980). It appears teachers emphasize fact questions, whereas research indicates that an emphasis on higher cognitive questions would be more effective. (p. 42)

Educators must model the process of "thinking about their thinking." Following is Costa's (1984) thoughts on the importance of an educator's modeling:

> Of all the instructional techniques . . . the one with the probability of greatest influence on students is that of teacher modeling. Since students learn best by imitating the adults around them, the teacher who publicly demonstrates metacognition will probably produce students who metacogitate. Some indicators of teachers' public metacognitive behavior might be: sharing their planning--describing their goals and objectives and giving reasons for their actions . . . admitting they do not know and answer but designing ways to produce an answer; seeking feedback and evaluation of their actions from others; having a clearly stated value system and making decisions consistent with that system; being able to self-disclose . . . their own strengths and weaknesses; demonstrating understanding and empathy by listening to and accurately describing the ideas and feelings of others. (p. 62)

The ultimate goal of the teaching/learning environment is to result in both educators and learners capturing a "critical thinking spirit." According to Norris (1985):

> Having a critical spirit is as important as thinking critically . . . This spirit has three requirements. The first is to employ critical thinking skills in reasoning about situations encountered in the world. The second requirement is that critical thinking be turned upon itself, that is, to think critically about one's own thinking . . . Finally, there must be a disposition to act in accord with the dictates of critical thought. (p. 44)

CRITICAL THINKING TEACHING STRATEGIES IN DISTANCE LEARNING

There are numerous instructional strategies that adult educators can use that will foster critical thinking skills in learners. Following are descriptions of selected strategies that are especially applicable to distance learning.

Critical Analysis

Critical analysis involves an individual learner (or small groups of learners) in critiquing material (e.g., items from the popular press) related to a specific topic or issue. For example, when investigating possible issues facing adult education, an adult educator asks learners to read and critique articles from current newspapers and news magazines regarding current societal events and issues. Questions such as the following might be considered: "What are the most pressing needs facing our society?", "Which of these are also important to our immediate communities? Why?", "Which of these needs and issues are currently being addressed? By whom?", "How could adult education help address the needs?", "Which needs and issues, not being addressed currently, should be addressed by our adult education organization? Why?", or "How can we better address these needs and issues?"

Debate Teams

One effective instructional strategy is the use of debate teams. In this activity, adult learners are assigned to one of two opposing teams, one in support of a specific issue and the other opposed. Following a general introduction from the session facilitator, team members at each site present evidence and reasons in support of their team's position. For example, adult learners could debate the pros and cons of self-directed learning. What are the benefits of self-directed learning? What are the drawbacks? This strategy is most effective if learners are asked to serve on a team whose position differs from that of their own.

Dramatization

Another type of strategy, dramatization, relies upon dialogue and action to assist adult learners in interpreting and analyzing situations. It differs from role playing in requiring a longer period of time and a holistic, well-developed plot. The facilitator shows a portion of an video, previously-recorded television show episode, or movie that deals with the specific topic being addressed. After viewing enough of the segment to develop a basic understanding of the situation, small groups of adult learners write the remainder of the script and then act out the alternative ending.

Action Maze

Action mazes provide excellent instructional formats for fostering decision-making skills in individuals. Adult learners are divided into groups consisting of two or three members. Each group is given a specific situation (or determines its own situation) as part of a larger issue to be explored. Each group member develops at least two responses to the situation and must identify the consequences of each alternative.

The group's situation is described on a small piece of poster paper. Group members write each alternative response on the front sides of individual adhesive notes that are attached to the poster paper. These may be lifted to reveal the consequences of each individual response, which are written directly on the poster paper. When completed, the action mazes are exchanged among teams. Another team reads the first team's situation, chooses an alternative response, identifies its own consequences for that particular response, and then compares its consequences with those of the original group.

Critical Incident

The critical incident instructional strategy involves presenting the most dramatic or important part of a critical situation or issue to a group of adult learners during the distance learning session, who must then resolve the situation or issue. The local site facilitator has complete information about the situation but shares it only in response to direct questions from the learners. After the adult learners share their solutions, the facilitator points out pertinent points the adult learners may have overlooked. The critical incident strategy emphasizes the importance of gathering complete information before making decisions.

Scenario Building

In this strategy, adult learners develop a detailed written description of a specified situation. The adult educator provides them with questions to address as they build their scenarios and guides them in setting goals and determining strategies. Adult learners could consider such questions as "What decisions are involved in this scenario?", "How does this make me feel towards the total situation", and "How does this make me feel about myself?"

Socratic Questioning

This strategy involves the use of the "right" questions, as opposed to questions that tend to bring closure to adult learners' thinking by simply requiring a "yes" or "no" answer or by asking adult learners to repeat information they have received. Such questions require only recall, not the processing or synthesis of information. In contrast, Socratic questioning can facilitate the exchange of ideas and viewpoints, give new meaning to content, explore applications to problems, and provide implications for real-life situations.

The following are illustrations of Socratic questions: "If this situation would happen to you, what would you do?"; "That's one possible approach to the issue, but can you think of another possible approach?"; "What impact will that decision have on your personal decisions?"; and "Why did you come up with that solution to this problem?"

Creative Visualization

Using this strategy, adult learners are asked to think ahead to a situation in which they might at some point find themselves. With learners' eyes closed and bodies relaxed, the facilitator helps create a mental image of the situation, setting the stage by asking questions that create a visual picture of the situation and the accompanying emotions.

Creative visualization could be employed by asking adult learners to imagine themselves as the administrator or manager of an organization, agency, or program. The adult learners are asked to visualize the answers to questions such as, "Who influences the decisions you make?", "How do you spend a normal day?", "How do you better motivate colleagues in your program?", "Are you a leader, administrator, or manager? Are there differences between the three?", and "How do you help individuals resolve conflicts among themselves?"

The same process could be used to have adult learners visualize what it would be like to be a client of the organization. Are they satisfied with the services they receive? What would they like to see adult learners do differently? If asked, would they pay for the learner services they've received?

Journal Writing

In this strategy, adult learners are asked to keep a journal or diary between distance learning sessions to encourage them to reflect on personal actions and behaviors that relate to the program topic. For example, as part of teaching interpersonal skills, an educator could ask adult learners to keep a journal in which they record conflict they have observed or experienced, how the conflict was addressed, and their personal feelings regarding the outcome.

Quotations or Cartoons

Here, a facilitator uses quotations and cartoons to encourage critical thinking and questioning among learners. The material could be displayed at a site location for adult learners to read during breaks, included in materials mailed to learners prior to the distance learning session, included as part of a self-directed learning packet, or included in follow-up mailings and newsletters. Group discussion or individual reflection increases the effectiveness of this strategy and can be initiated by such questions as, "What do you think this quote means?", "What does this cartoon say to you?", or "How does this cartoon relate to your personal life?"

An adult educator could develop a resource file of cartoons. Quotes from historical figures could serve as an effective strategy to stimulate discussion and encourage sharing of opinions, such as Robert Kennedy's "Some men see things as they are and say 'why'...I dream things that never were and ask 'why not'". Cultural proverbs could serve to initiate group discussion, such as the Chinese proverb, "If you want one year of prosperity, grow grain...If you want ten years of prosperity, grow trees...If you want one hundred years of prosperity, grow people."

Inventing

With this strategy, the facilitator asks adult learners to invent and describe new products, services, or teaching strategies. Learners may work individually or in small groups to develop their ideas. For example, as part of improving volunteer leader retention, they might invent new ways to recognize adult learners for their volunteer contributions. Or, a group of adult learners discussing their respective roles and responsibilities could be asked to invent the "perfect" distance learning technique and to explain why they incorporated specific characteristics into the design of their new "product."

Pluses, Minuses, and Alternatives

One way to analyze various alternative solutions to a situation is to identify the pluses, minuses, and implications (PMI) of each alternative. Adult learners may work individually or in small groups. The analysis involves listing and discussing the aspects of a particular decision for an individual, group, or entire community. When possible, the facilitator may lead the entire group in discussing the highlights of small-group discussions.

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